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OF PLANT PROTECTION

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DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Species of *Fusarium* existing in the Country (1).

Mr. César Carrera, Agronomy Engineer, Chief of the Phytopathological Division, Ministry of Agriculture, has made a study of the fungi belonging to the genus *Fusarium* in the Argentine Republic.

This work is the first carried out in the country with a view to making known the saprophytic or parasitic species existing in the country.

The following is a list of the species studied and their hosts:—

Fusarium equiseti (Cda.) Sacc. on peas.
F. scirpi Lamb. and Fautr. var. *caudatum* Wr. on pepper.
F. heterosporum Nees on *Spartina.*
F. heterosporum Nees var. *lolii* (W. G. Sm.) Wr. on *Spartina.*
F. culmorum (W. G. Sm.) Sacc. on peas.
F. culmorum (W. G. Sm.) Sacc. var. *cereale* (Cke.) Wr. on barley.
F. graminearum Schw. on wheat.
F. moniliforme Sheld. on maize.
F. poae (Peck) Wr. on wheat.
F. lini Bolley on flax.

Eritrea: Locusts (2).

During the months of March and April, 1935, no locusts have been reported in the Colony.

Madagascar: Phytopathological Notes (3).

COFFEE.

Hemileia vastatrix, Berk. and Br. — Propaganda for measures against *H. vastatrix,* a very noxious parasite of Arabian coffee, is actively pursued in Itasy (see this *Bulletin,* 1934, No. 8, p. 175). About a hundred thousand trees will

* Under this and the third heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Agronomy Engineer, Director of Sanidad Vegetal, Ministry of Agriculture, Buenos Aires, Argentine Republic.

(2) Communication from the official correspondent of the Institute, Dr. Rolando GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(3) Communication from the official correspondent of the Institute, Mr. G. BOURIQUET, Director of the Phytopathological Laboratory, Pasteur Institute, Tananarive, Madagascar.

be sprayed with copper sulphate free of charge by the local administration for demonstration purposes. New tests which permit the most suitable time for spraying in the various regions to be ascertained have been undertaken on the mountain of Ambre, region of Diego, in Ankaizina, region of Majunga, and in the neighbourhood of Faratsiho, region of Tananarive.

This indispensable intervention for an efficient control of *H. vastatrix*, is, however, practically non-existent for a noxious pest of coffee, *Galeatus involutus*, Drake.

On the request of European and native planters, the Phytopathological Laboratory has sought for a mixture, easily prepared and inexpensive, for the simultaneous control of the fungus and the insect.

G. involutus, like *H. vastatrix*, propagates during the rainy season and covers the entire lower surface of the leaves on which are found insects of all ages during practically the whole of the rainy season.

In practice, a simultaneous control of the two organisms appears to be reasonable.

As Itasy is a tobacco producing region (the harvest will approach 1000 tons this year) researches have been directed towards a copper-nicotine mixture. A mixture tested in the Laboratory has given satisfaction from the points of view of homogeneousness, adherence and insecticide power. Experiments made on the crops in February were very encouraging. According to these first tests the action of the mixture on *Hemileia* does not appear to diminish. The formula is as follows :—

Chopped tobacco leaves	5 kg.
Copper sulphate	1,500 kg.
Lime	(quantity necessary to obtain a slight basicity).
Casein	50 g.
Water	100 litres.

The preparation should be made as follows:—

(1) In 75 litres of water place 750 g. of sifted lime of the country. Add 5 kg of tobacco leaves (defective and unsaleable leaves) cut into small pieces. Leave to soak for 24 hours.

(2) Dissolve 1.500 kg. of copper sulphate in 10 litres of water.

(3) Add the tobacco juice to the solution of copper sulphate after having pressed out the water contained in the leaves.

(4) Induce basicity of the copper solution by the addition of milk of lime (use litmus paper).

(5) Bring up to 100 litres.

(6) Add 50 g. of casein.

Sooty mould. — A fungus showing the characters of a sooty mould has been observed on the lower surface of leaves on the East coast.

Cercospora coffeicola, Berk. and Cke. — A heavy fall of leaves was reported in December, 1934, in the Vatomandry district. On samples of leaves originating from this district, we have found a *Leptosphaeria* in association with, it appears, *C. coffeicola*, Berk. and Cooke, common in this district.

CLOVE TREE.

Cephaleuros virescens, Kunze. — This alga, very common in Madagascar, is often found on clove tree leaves.

Strigula. — In association with a fungus, *Cephaleuros virescens* forms a lichen developing on the leaves and belonging to the genus *Strigula*.

Scale insects, *Aschersonia* and sooty mould. — Scale insect of the Lecaninae family are sometimes found on the leaves of clove trees. These scale insects may be attacked by an *Aschersonia*. They also cause the development of a sooty mould.

Sphaerella. — On the leaves of clove trees have also been observed spots caused by a *Sphaerella* which will be described in a note on the diseases of this plant.

ALBIZZIA STIPULATA.

Gummosis (?). — A serious disease found on the bark and the external parts or wood of *Albizzia stipulata* causes the loss of many trees in the plantations on the East coast. The parts attacked form a gum which flows outwards. The cause of this disease, which appears to be of a physiological nature, has not yet been established.

COCO-NUT.

Scale insects, *Aschersonia* and sooty mould. — Coco-nuts on the East coast are frequently covered with a sooty mould developing on the honey-dew of scale insects. In its' turn, the insect may be attacked by an *Aschersonia*.

GRAPE VINE.

Cyphella. — On the High Tablelands, at Miarinarivo, the branches of grape vines have been observed to be altered by a parasite belonging to the genus *Cyphella*.

MAIZE.

Helminthosporium turcicum, Pass. — In different parts of the island intense attacks by *H. turcicum*, Pass. have been reported which was recognised for the first time in Madagascar at the begining of 1934. This parasite is chiefly harmful to certain varieties of maize, notably ' Plata ' and also plants which sprout late.

Rice.

Ustilaginoidea oryzae (Pat.) Bref. — A fungus identical to *U. oryzae* (Pat.) Bref. has been found on samples of rice from the Fénérive, district. Up to the present time this species has not been reported in the colony.

Cercospora. — A *Cercospora*, parasite of rice leaves, has been found in the neighbourhood of Faratsiho.

Wheat.

Rust. — In spite of a serious attack by *Puccinia triticina*, Erikss., one of the agents of wheat rust in Madagascar, the Agricultural Station of Nanisana has been able to obtain, on small isolated patches, a satisfactory harvest with the variety 'Kenya Standard', introduced in 1933 because of its resistence to these diseases.

Tobacco.

In the Miandrivazo district, where tobacco is extensively grown, all the parasites and diseases have been found which exist on the High Tablelands where the climate is rather different: odium, *Alternaria tabacina* (Ell. and Ev.) Hori, mosaic, kroepoek, crinkling, and a vermicular disease. In addition to these diseases there exist cases of virescence, streak, a *Cladosporium* disease, a bacterial disease, cases of chlorosis attributable to the lack of nitrogen in the soil. Generally speaking, these diseases are not wide-spread in the West and they do not cause much damage at the present time.

Tomato and Eggplant.

Heterodera radicicola, Greeff. — On the East coast the roots of these two plants show knots containing eelworms identical, it appears with *H. radicicola*, Greeff.

French Beans.

In the neighbourhood of Fénérive, damage has been caused to French beans (*Phaseolus vulgaris*, L.) by a *Sclerotium* which does not differ from *Scl. rolfsii*, Sacc.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (1).

November and December, 1934.

In the months of November and December, 1934, the movements of swarms of red locusts (*Nomadacris septemfasciata*) was intensified. At the same time swarms from the high lands flew towards the plain and banks of rivers, chiefly

(1) Communication from Mr. Julio Gardé Alfaro Cardoso, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the Director of Agricultural Services of the Colony.

towards the coastal zones for laying purposes; for this reason many swarms descended the river valleys coming from neighbouring colonies. Various swarms came from Tanganyika, Nyasaland, Northern Rhodesia, Southern Rhodesia, the Transvaal and Zululand thereby increasing the number of swarms of the previous generation already existing in the colony.

Certain swarms followed the valley of the Chire towards Nyasaland.

These invasions are the result of a natural phenomenon which human ingenuity was so far been unable to control and in the same way it is difficult to prevent the movements of future swarms derived from hopper bands which it has not been able to destroy in spite of the active control exercised.

During the month of November the swarms, generally very large, made great flights though in December a great dispersion was noticed, movements in general following no particular direction.

Layings have taken place throughout the whole colony and the first hoppers have appeared. The first band was reported on 28 November in the Quelimane district.

Locust movements in general have been less intense than in the past year though in certain districts a great number has been reported. Thus, in the region of Manhiça, district of Lourenço Marques, a very large invasion has been reported.

The number of egg deposits, though large, have been less then in the past.

Several tons of egg pods have been collected though less then in the previous season, owing to the fact that the rains prevented breeding grounds being reported.

The damage caused to agricultural property was, generally speaking, much less, though it must not be forgotten that many cultivators have reduced the area under cultivation.

In Fingoe the tropical migratory locust (*Locusta migratoria migratorioides*) was observed in association with *N. septemfasciata*.

January, 1935.

Swarms still flying, chiefly in the districts of Cape Delgado and Nyassa, generally from North to South though in far less numbers. In all the circumscriptions hoppers have been reported though it has been ascertained that their number is less than in the previous season and that the plague is diminishing.

Control of the hoppers has been initiated in all the circumscriptions with satisfactory results.

Information is lacking on *L. migratoria migratorioides* though it is very probable that it exists in the region of Maravia.

February, 1935.

The situation in general has greatly improved in comparison with the last season. The number of hopper bands were much less and much smaller.

It is true, however, that in certain regions such as Manhiça and Valle de Infulene, district of Lourenço Marques hoppers have appeared in great quantities while on the other hand in other regions their appearance has been rare.

Thousands of bands will be destroyed though in many places control will be impossible owing to the fact that these are unhabited regions and also that water and native labour is lacking.

Southern Rhodesia: Locust Invasion, 1932-1935 (1).

Monthly Report No. 27. February, 1935.

The Red Locust (*Nomadacris septemfasciata*) has been reported in all stages in the colony during February, namely eggs, hoppers and adults, and some late egg-laying has occurred. A sample of adult locusts from the Lomagundi district (Miami) included the Tropical Migratory species (*Locusta migratoria migratorioides*).

The distribution of Red Locust hoppers has included most of the colony, but the hatchings in many districts have been very light and have been comparatively or very easily destroyed.

The largest and most persistent outbreaks have been sustained in the low veld and drier districts including Nyamandhlovu, Wankie, Sebungwe, Lomagundi (Zambesi Valley), Mtoko (low veld), Inyanga (low veld), and Belingwe.

Enemies and Disease.

The main reason for lack of persistence of outbreaks in the higher and more humid parts of the colony was the heavy mortality produced by *Empusa*. The fungus also affected hoppers in the drier areas but apparently not to the same extent, and after the sudden failure of the rains about the end of the first week of the month, the disease seems to have been much less in evidence. The remaining hoppers have shewn every indication of reaching maturity.

The Black or White-bellied Stork (*Abdimia abdimii*) has been present in the colony in great numbers and the White Stork (*Ciconia alba*) has been reported from various localities. Parasites, apart from *Stomatorrhina* attacking eggs, have not been reported or discovered.

Poisoning of Locust Eating Birds.

Certain experiments have been carried out in collaboration with the Division of Chemistry to test the danger to birds from eating locust hoppers sprayed

(1) Communication from the official correspondent of the Institute, Mr. Rupert W. Jack, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

with locust poison. A detailed report will be published later, but it may be stated here that the results obtained indicate that no such danger exists, even if the poison is used at excessive strength.

Outlook.

The outlook as far as the Red Locust is concerned continues apparently favourable, but the failure of the rains will probably admit of more hoppers maturing than would have been the case if the very humid conditions of December and January had continued. The dry weather is also probably favourable to the development of the Brown Locust (*Locustana pardalina*) in Bechuanaland although the position there is not very clear from available reports.

Monthly Report No. 28. March, 1935.

The only species of locust reported in the colony during March has been the Red Locust (*Nomadacris septemfasciata*, Serv.). The reports refer mainly to the hopper stage and only a few districts have been involved. The invasion is at the present time at a low ebb.

Eggs were reported to have been laid in the Urungwe section of the Lomagundi district, by a swarm of fliers which crossed the Kariba Gorge from N. Rhodesia at the beginning of the month, and did considerable damage to native crops. Fliers were also reported in the Sebungwe district at the same time, and there also laid eggs and did some damage to native crops. On the 18th a swarm of fliers also appeared in the Bubi district, but no report of egg-laying was received.

All these swarms were certainly invaders from the north or north-west, and it is difficult to account for swarms of this species in egg-laying condition at this time of year, long after the first invaders had laid eggs and perished.

Up to the end of the month no locusts are known to have matured within the colony.

Operations have been prosecuted vigorously against hoppers in all accessible positions, and, from available information, it would appear unlikely that any considerable number of flying swarms will develop in the colony, although a small number are likely to appear from the remoted localities.

No records of *Empusa* or parasites were secured during the month.

It is noteworthy that the main incidence of breeding during the present season appears to have occurred in the lower veld of the northern part of the colony, extending from Wankie district through Sebungwe, Lomagundi, Darwin and Mtoko to Inyanga. Nyamandhlovu and Belingwe districts sustained fairly severe attacks in certain parts. Elsewhere hatchings were light and scattered and some districts escaped almost entirely.

VARIOUS QUESTIONS

Vth Assembly of the International Institute of Beet Research.

The Vth Assembly of the International Institute of Beet Research, which met in Brussels in January, 1935, decided, *inter alia*, to charge the Belgian Institute for Beet Improvement, in collaboration with the Netherlands' Institute for Beet Cultivation, with the duty of discovering the best methods of control of different types of yellowing of beets. The Assembly also recommended that new researches should be made to determine the most suitable means of control of the leaf spot of beet (*Cercospora beticola*).

Fourth Meeting of the Committee for the Study of Locust Biology.

At this meeting, held at Algiers from 18 to 25 March, 1935, after having determined the results obtained in fixing the limits of the outbreak areas of the tropical migratory locust (*Locusta migratoria migratorioides*), the Committee decided to give special attention at present to the desert locust (*Schistocerca gregaria*).

The Committee also decided to give its' support to the establishment of a central laboratory dependent from the Chair of Entomology of the National Natural History Museum at Paris.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of 27 March, 1935, concerning the application of the Law on hunting of 13 July, 1934, it is forbidden to lay poison outside houses and enclosed lands. All substances having a deadly effect on game are considered as poisonous. This regulation does not apply to the control of slugs, insects and worms, nor to that carried out by means of aeroplanes. It is also permitted to use poisoned seeds dyed red and preparations with a phosphorous basis in the control of mice and rats; these preparations may be use for the control of crows and magpies. Precautions to be taken are fixed for this control. The control of crows and magpies, may be made compulsory in certain districts.

Rabbits are considered as game; it is however, permitted to hunt them all the year round.

The part of this Decree refering to the damage caused by game escaping from warrens fixes the following measurements which will be considered sufficiently high for enclosures:— for red deer and fallow deer, wire netting 1.50 m. high; for hares and rabbits, netting 1.50 m. high, 1.30 m. being below the soil and 20 cm. above. In this last case the mesh should not exceed 40 mm. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1935, Bd. VII, Nr. 5, S. 46-59).

Germany (Hamburg). — By amendment, dated 26 February, 1935, to the Police Ordinance of 15 March, 1930 concerning the control of wart disease of potatoes [*Synchytrium endobioticum*] [see this *Bulletin*, 1930, No. 10, pp. 150-151], it is forbidden to plant potatoes in the workmens and householder's gardens with the exception of the varieties ' Juli ' (' Juli-Niere ', ' Juli-Perle ') and ' Preussen ' obtained from a breeder or officially recognised as being potatoes for planting. (*Amtliche Pflanzenschutzbestimmungen*. Berlin, 1. April 1935, Bd. VII, Nr. 4, S. 36).

Germany (Saxony). — By Decree of 15 February, 1935, relative to the control of fruit diseases and pests, it is prescribed that fruit trees should be cut which are dead or in bad condition and are attacked by woolly aphis [*Eriosoma lanigerum*] or canker [*Nectria ditissima*] or any other disease or pest to the degree that such treatment appears to be advisable.

Witches' broom of cherry trees [*Taphrina cerasi*] should also be removed and all branches which are dead, in bad condition or attacked by Scolytids.

Mosses, lichens, and old bark should be removed from the trees. Tents of caterpillars and mummified fruits found on the trees in winter should be removed and burnt.

Fruit trees, which are too old and on account of their height do not permit, or only permit with difficulty the execution of the work mentioned above, should be cut down if it is impossible to prune them in a suitable manner.

All this work should be carried out before 15 March of each year.

The Police authorities, in accord with the experts or the local fruit growing associations, will appoint persons or committees of experts to see that these prescriptions are applied.

If persons concerned do not carry out the necessary work within the required time, the Police may appoint other persons to execute the work at the expense of those interested. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1935, Bd. VII, Nr. 4, S. 37).

Germany (Thuringia). — By Decree of 18 March, 1935, measures have been adopted for protecting newly sown fields against pigeons. These measures correspond to those adopted in Prussia [see this *Bulletin*, 1935, No. 4, p. 86]. It is, however, added that these measures may be extended to the harvesting period of oleaginous and leguminous plants and cereals.

These measures do not apply to carrier pigeons. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1935, Bd. VII, Nr. 5, S. 64).

Argentine Republic. — By Ministerial Resolution No. 708 dated 9 October, 1934, the ' Dirección de Defensa Agrícola y Sanidad Vegetal ' is charged with the execution of the Decrees relative to the exportation of fresh fruits. (*Boletín Oficial de la República Argentina*, Buenos Aires, 4 de febrero de 1935, año XLIII, núm. 12.193, págs, 89 y 90).

*** By Decree No. 50.624, dated 26 October, 1934, the ' Comisión Nacional de Defensa contra la Langosta ' is authorised to spend up to the sums

of 130.000 and 750.000 ' pesos ', national currency, respectively on the purchase of adults and eggs of locusts [*Schistocerca paranensis*]. (*Ibid.*, 6 de febrero de 1935, núm. 12.195, pág. 168).

*** The Decree No. 51.664 of 15 November, 1934 modifies the Decree No. 50.624 of October of the same year in the sense that the sum to be spent on the acquisition of eggs of the South American locust [*Schist. paranensis*] amounts to 400 000 ' pesos ', national currency, up to 31 December, 1934. (*Ibid.*, 27 febrero de 1935, núm. 12.213, pág. 918).

*** The Resolution No. 805 of 19 November, 1934 regulates the Decree No. 51.325 of 9 November relative to the sale of products intended for the control of plant pests. (*Ibid.*, 21 de marzo de 1935, núm. 12.229, págs. 734 y 735).

*** By Decree No. 51.966 of 21 November, 1934 it is forbidden, as from 16 March 1935, to send fresh fruits – with the exception of bananas, oranges and other citrus fruits, pineapples, strawberries, grapes, pomegranates, figs, melons and water-melons – to the southern zone of the province of Buenos Aires and the Territories of Río Negro and Neuquén in order to avoid the introduction of the Oriental Peach Moth (*Laspeyresia molesta*) which exists in other parts of the country. (*Ibid.*, 16 de marzo de 1935, núm. 12.226, pág. 578).

Ceylon. — By Notification of 29 November, 1934, citrus fruits originating from Palestine should be previously treated with hydrocyanic acid in order to destroy scale insects. Consignments should be accompanied by a certificate issued by a official duly authorised by the Department of Agriculture of Palestine, stating that this treatment has been carried out. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Aprilheft, S. 1302).

French Colonies. — By Decree of the Minister for Colonies, dated 8 February, 1935, article 6 of the Ministerial Decree of 22 February, 1926 regulating the introduction of cotton seed into the French Colonies [see this *Bulletin*, 1935, No. 2, p. 36], has been modified thus:—

' The provisions of the present Ministerial Decree are applicable to the products enumerated in article 1 and intended for importation or transit through all the French Colonies except Madagascar, New Caledonia, French Equatorial Africa, Indo China (Cambodia and Cochin-China only) and the New Hebrides '.

' The prohibitions contained in article 1 of the present Ministerial Decree are applicable to the products stated coming from Egypt, the Anglo-Egyptian Sudan, Italian Somaliland, former German East Africa, British East Africa, Nigeria, Sierra Leone, Angola, Lagos, the Belgian Congo, Algeria, Tunis, Morocco, Zanzibar, Asia (except Indo-China, Tonking, and Annam), Brazil, Mexico, Hawaii, Samoan Islands, Australia, the British West Indies, Texas, Louisiana, New Mexico (United States), and Greece '. (*Journal Officiel de la République Française*, Paris, 24 février 1935, LXVII[e] année, n[o] 47, p. 2366).

*** By Decree of the Minister for Colonies, dated 9 February, 1935, the Ministerial Decree of 7 December, 1926 [see this *Bulletin*, 1927, No. 2, pp. 23-24] concerning the protection of the banana against Panama disease [*Fusarium cubense*] has been modified thus:—

' Art. 1. — Paragraph 2 of article 6 of the Ministerial Decree of 7 December, 1926 is modified and completed as follows:—

ARTICLE 6.

. . . . . .

' The prohibitions contained in article 1 of the present Ministerial Decree are applicable to the products stated coming from the American continent, the West Indies, the Canary Islands, Sierra Leone, the Gold Coast, Martinique, Guadeloupe, and French Guiana '.

' Art. 2. — With a view to preventing the extension of Panama disease in Martinique, Guadeloupe, and French Guiana, these three Colonies remain subject to the prohibitions contained in article 1 of the Ministerial Decree of 7 December, 1926 '. (*Ibid.*).

Belgian Congo. — The Decree No. 33/Agri., dated 29 December, 1934, concerning the control of locusts in the Province of Stanleyville, prescribes for this purpose the same measures as have already been adopted for the Province of Lusamboo [see this *Bulletin*, 1935, No. 2, pp. 36-37]. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 10 février 1935, 24me année, nº 3, p. 72-73).

Denmark. — By amendment, dated 18 December, 1914, to the provisions concerning the regulation of means of control of crop pests, it is established that, as from the 1st January, 1935, the allowance permitted for nicotine preparations may vary between — 1 and + 5 % of the guaranteed content in pure nicotine, so that for a preparation which should contain 80 % nicotine, the actual content would vary between 79.2 and 84 %. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Februarheft, S. 386).

Danzig (Free City of). — Following the Phytosanitary Convention between Danzig and Poland [see this *Bulletin*, 1935, No. 2, p. 37] establishing that the Free City should apply in its' territory all the prescriptions concerning the protection of plants in force in Poland, the Government of Danzig has, by various Decrees dated 11 December, 1934, adapted the phytosanitary legislation of the country to the regulations in force in Poland.

One of these Decrees on the control of plant diseases and pests, and weeds corresponds to the analogous Polish Decree of 19 November, 1927. Another is concerning the importation of plants; the phytosanitary provisions contained therein also correspond with Polish regulations. Potatoes may be imported without special permission. The model of the certificate used for exporting potatoes and plants to Poland may also be used for exporting to Danzig, substituting the word ' Danzig ' for ' Poland '.

The Decree of 15 May, 1933, on the control of wart disease of potatoes (*Synchytrium endobioticum*) and the Colorado beetle (*Doryphora Leptinotarsa decemlineata*) (see this *Bulletin*, 1933, No. 11, p. 252) is replaced by regulations corresponding to the Polish Decree of 3 August, 1932.

A Decree on the destruction of thistles contains a regulation for destroying all thistles (*Cirsium arvense, C. lanceolatum, C. canum, C. rivulare, Carduus nutans, C. crispus, C. acanthoides*) by pulling them up either by hand or by means of implements before the period of flowering.

A Decree on the control of the woolly aphis of apple (*Eriosoma lanigerum*) came into force on 22 December, 1934.

Finally, a Decree concerning the destruction of barberry bushes (*Berberis vulgaris*) replacing the Police Ordinance of 31 July, 1925, prescribes the destruction of all plants of barberry, with the exception of plants growing in botanical gardens or at a distance of at least 200 m. within the forest borders. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1935, Bd. VII, Nr. 2, S. 19-20).

United States of America. — Notice of Quarantine No. 71, with rules and regulations supplemental thereto, approved on 20 February, 1935 and effective on 25 of the same month, quarantine the States of Connecticut, New Jersey, and New York to prevent the spread of the Dutch elm disease (*Ceratostomella ulmi*), which is known to exist in parts (designated as regulated areas) of these three States.

It is forbidden the interstate movement from the regulated area of any and all parts of all species of the genus *Ulmus*, whether forest or nursery grown, except that elm lumber or produits manufactured from or containing elm wood, if entirely free from bark, are exempt from restriction.

No restrictions are placed on the interstate movement wholly within the regulated area.

Shipments originating outside of the regulated area if moving through this area must be billed on through bill of lading. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Dutch Elm Disease Quarantine (Domestic). Notice of Quarantine No. 71, with Regulations*, [Washington, 1935], 4 pp. [Mimeographed]).

*** According to detailed instructions relative to packing materials for nursery stock, plants, and seeds, dated 27 February, 1935 and effective on 4 March, 1935, all packing materials employed in connection with importations of nursery stock and other plants and seeds under Quarantine No. 37 (see this *Bulletin*, 1935, No. 5, p. 112) are subject to approval as to such use by the Bureau of Entomology and Plant Quarantine.

Such materials as sphagnum, ground peat, coconut fiber, osmunda fiber, buckwheat hulls, cereal straw (except rice straw), cereal chaff (except rice chaff), excelsior, shavings, sawdust, and charcoal, are authorized for use with nursery stock, plants, and seeds generally, provided they are free from sand, soil, or earth and have not been previously used as packing or otherwise with living plants.

Packing materials other than those specifically mentioned may be authorized when it has been determined that their use does not involve a risk of introducing insect pests and plant diseases.

Under the provisions of regulation 7, Quarantine No. 37, the use of sterilized soil and of naturally sterile soil as described below is not authorized for plants or plant products other than bulbs, corms, nuts, and seeds.

The prescribed method of sterilization is as follows:—

The sand, soil, or earth must be brought to a temperature of 100° C. and held at or above that temperature for a period of 1 hour. Any method which will maintain the heat throughout the whole mass at the required temperature for this length of time will be satisfactory to the Bureau. The sterilization must be performed under the supervision of a duly authorized inspector of the country of origin and must be certified to by such inspector.

Under the provision of the said regulation 7 for use as packing with bulbs, corms, seeds, and nuts, of soil which has been otherwise treated the following are authorized:—

(*a*) **Subsoil from Japan**, collected and handled under the supervision of the Imperial Plant Quarantine Station at Yokohama, Japan, when certified by the director of that station that the subsoil has been taken from at least 2 feet below the surface, and that it has been sifted, dried, and stored so as to prevent contamination by insects and diseases.

(*b*) **Dune sand from Belgium and the Netherlands**, taken from a depth of 5 feet or more below the surface and so certified by an inspector of the phytosanitary service of the country concerned.

(*c*) **Coral sand from Bermuda**, uncontaminated by surface soil, and certified as such by the Director of Agriculture of Bermuda. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Packing Materials for Nursery Stock, Plants, and Seeds*. Washington, D. C., 1935. 2 pp. [Mimeographed]).

France. — By Ministerial Decree dated 1 March, 1935, the zones declared infested by the Colorado beetle *Leptinotarsa decemlineata* and the zones of protection are limited as indicated by the table attached to the above mentioned Ministerial Decree. The previous Ministerial Decrees of limitation are annulled. (*Journal Officiel de la République française*, Paris, 21 mars 1935, LXVII^e année, nº 68, p. 3230-3239).

*** The Law of 23 March, 1935 accords approval to the International Convention for Plant Protection signed at Rome on 10 April, 1020 [see this *Bulletin*, 1020, No. 4, pp. 50-55]. (*Ibid.*, 26 mars 1935, nº 72, p. 3428).

Italy. — By Ministerial Decree of 27 November, 1034, the new regulation has been published on the transport of dangerous and harmful merchandise on the State railways. (Supplemento ordinario alla *Gazzetta Ufficiale* n. 82 dell'8 aprile 1935, 64 pp.).

*** By Ministerial Decree of 25 February, 1935, the amount of the contribution has been fixed which is payed by the State to all those concerned in the compulsory control of scale insects of citrus trees. The rules according to which this contribution should be accorded have also been established. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 11 aprile 1935, anno VII, n. 11, pp. 1675-1679).

*** By Ministerial Decree dated 13 March, 1935, the interdiction, of a temporary nature, placed on the hunting of quails on the sea coast, by the Ministerial Decree of 18 December, 1933, is prorogued for the present hunting season. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 21 marzo 1935, anno 76°, n. 67, pp. 1131-1132).

*** By Decree No. 46153 of 29 March, 1935 the Prefect of the province of Cagliari has made it incumbent on all owners, tenants and managers of land to declare, without delay, the hatching of locusts and to destroy them by means of poisoned baits (bran with 4 % sodium arsenite) provided, on application, by the Travelling Chair of Agriculture; and also to report on the localities where laying is taking place.

This Decree is followed by a circular, of the same date, requesting the 'Podestà' and 'Commissarî prefettizî' of the province to assist in the organisation and execution of the locust control. (*L'Agricoltura Sarda*, Cagliari, aprile 1925, anno XIV, n. 4, pp. 177-180).

Morocco (French Zone). — A Decree of 8 March, 1935 authorises the destruction of rabbits causing great damage in a zone within the circumscription of civil control of the Hayana. (Empire Chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 22 mars 1935, XXIVe année, nº 1169, p. 332).

Mexico. — By 'Acuerdo' of 21 October, 1934, the following paragraph is added to article 2 of the 'Cuarentena Exterior' No. 3 against the pink bollworm of cotton [*Platyedra gossypiella*], dated 17 June, 1927:—

'For the importation of bales of cotton from Egypt, a country infested with the pink bollworm of cotton, a certificate is required from the corresponding phytopathological Service of the country of origin stating that the bales were fumigated at the port of export with hydro-cyanic acid at the rate of 60 grammes per cubic metre for two hours in a vacuum of 27 to 25 inches (international standard)'. (*Diario Oficial*, México, 14 de noviembre de 1934, tomo LXXXVII, núm. 12, pág. 289).

Netherlands (The). — The Law of 27 December, 1934, published 5 February, 1935, contains regulations for the control of the Colorado beetle [*Leptinotarsa decemlineata*]. (*Staatsblad van het Koninkrijk der Nederlanden*, 1935, nº 687, blz. 1-3).

Peru. — By ' resolución suprema ' No. 141 of 15 December. 1934, *Dysdercus ruficollis* ('arrebiatado') and *Gasterocercodes gossypii* ('gorgojo de la chupadera') are declared pests of national agriculture. The cultivation of cotton shoots is prohibited in all the valley of the Chira and its affluents. The period for sowing cotton remains limited to the months of January and February. In order to maintain a fallow period – the fields to be completely free from cotton – which should correspond with the months of November and December, planters should destroy all cotton plants and the roots should be extracted and burnt before the end of October. The presence of cotton plants of the variety ' País ' is prohibited in the valley of the Chira and its affluents. (*La Vida Agrícola*, Lima, enero de 1935, vol. XII, no. 134, pág. 65).

*** By another ' resolución suprema ' of the same date (No. 142) the sowing of cotton in the Santa valley should commence during the first fortnight of May and finish during the last fortnight of July. The shoots should be pruned during the month of August, preferably in the first fortnight of the month. Cultivation of cotton shoots of the second and also successive years in the Santa valley is prohibited. The following weeds are declared pests of national agriculture, being hosts of the ' arrebiatado ' and the ' picudo del algodonero ' [*Anthonomus vestitus*] also those which will be periodically reported by the ' Dirección de Agricultura y Ganadería '; it being compulsory for them to be destroyed by planters, industries and transport undertakings, municipalities and the State itself: *Sida paniculata* (' pichana ' or ' rabo de zorro '), *Malachra* sp. (' salvia espinuda ') and *Malva hortensis* (' amapola '). The cultivation of cotton is forbidden in the undulating zone of Lacramarca or Zaruno, which is irrigated exclusively by the waters of this zone. (*Ibid.*).

*** A third ' resolución ' of the same date declares sugar cane in the Lambayeque valley to be infected by mosaic and consequently the extraction and transport of cane cuttings from this valley destined for other parts of the territory of the Republic, free from the disease, is prohibited. (*Ibid.*, pág. 66).

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Yougoslavia. — The Ministerial Notification No. 13308 II of 11 March, 1935, publishes the list of countries which must be considered, for the year 1935, infested by wart disease (*Synchytrium endoboticum*), the Colorado beetle (*Leptinotarsa decemlineata*) and potato moth (*Phthorimaea operculella*), also by San José scale (*Aspidiotus perniciosus*). (*Službene Novine*, Beograd, 22 mart 1935, godina XVII, broj 69-XVI, str. 312).

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MINISTERIO DE AGRICULTURA. DIRECCIÓN GENERAL DE AGRICULTURA. SECCIÓN 3ª. Plagas del campo. Memoria del Servicio Fitopatológico Agrícola. Año 1933. Madrid, 1934, 312 págs., 59 figs.

[Contains:—

I. Organización del Servicio Fitopatológico Agrícola.
II. Servicio de Plagas del Campo.
III. Inspección Fitopatológica.
IV. Investigación y experimentación.

In the appendix entitled: ' Legislación fitopatológica ' are given several measures not included in the report of 1932 (see this *Bulletin*, 1934, No. 2, p. 45) also the more important measures established in the year 1933].

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[*Colletotrichum lindemuthianum, Uromyces appendiculatus, Isariopsis griseola, Oidium* sp., mosaic, *Rhizoctonia solani, Heterodera radicicola, Alternaria brassicae, Cercospora canescens, Phyllosticta phaseolina, Ramularia* sp., *Sclerotium rolfsii*, etc.].

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[Mosaic, *Sclerotium rolfsii, Marasmius sacchari, Colletotrichum falcatum, Fusarium moniliforme, Melanconium sacchari, Leptosphaeria sacchari, Cercospora longipes, Helminthosporium sacchari*, etc.].

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[*Penicillium crustaceum, P. expansum, P. italicum, P. digitatum, Aspergillus flavus, A. fumigatus, A. herbariorum, Sterigmatocystis nigra, S. ochracea, Alternaria tenuis, Macrosporium commune, Fusarium putrefaciens, F. lateritium, Cephalosporium, Acremonium, Trichothecium roseum, Sclerotinia fructigena, Scl. cinerea, Rhizopus nigricans, Mucor piriformis, M. racemosus, Leptothyrium pomi, Phytophthora syringae, Phyt. cactorum*, ' male raggiante ', ' stoppositè ', ' riscaldo ', ' male delle macchie brune '].

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[Description of 101 fungi living as parasites on 70 medicinal and aromatic plants].

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[In Rumanian, with title and a summary in German:— ' Ueber die Bekämpfung des Haferflugbrandes durch Beizen '].

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NOTES

IVth International Technical and Chemical Congress of Agricultural Industries. — A section of this Congress, which will take place in Brussels from 15 to 28 July, 1935, will be devoted to the diseases and pests of industrial plants.

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